

FORM-PTO-1390  
(Rev. 12-29-99)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

**TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 U.S.C. 371**

027650-907

U.S. APPLICATION NO. (If known, see 37 C.F.R. 1.5)

Unassigned

09/674262

INTERNATIONAL APPLICATION NO.  
PCT/SE99/00696INTERNATIONAL FILING DATE  
28 April 1999 (28.04.99)PRIORITY DATE CLAIMED  
29 April 1998 (29.04.98)

## TITLE OF INVENTION

A METHOD OF MAINTAINING THE PRESSURE DIFFERENCE IN A HEAT TREATMENT PLANT

## APPLICANT(S) FOR DO/EO/US

GORANSSON, Christer; JANSSON, Magnus; PALM, Bengt

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and the PCT Articles 22 and 39(1).
4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
  - a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☒ has been transmitted by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
  - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☐ have been transmitted by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☒ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

## Items 11. to 16. below concern other document(s) or information included:

11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A **FIRST** preliminary amendment.
  - ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
14. ☐ A substitute specification.
15. ☐ A change of power of attorney and/or address letter.
16. ☒ Other items or information:

Unexecuted Declaration; Publ. Appin. No. WO 99/55175.

U.S. APPLICATION NO. (if known) (see 37 C.F.R. § 1.501)

Unassigned

097 674262

INTERNATIONAL APPLICATION NO.

PCT/SE99/00696

ATTORNEY'S DOCKET NUMBER

027650-907

17. ☐ The following fees are submitted:

CALCULATIONS

PTO USE ONLY

**Basic National Fee (37 CFR 1.492(a)(1)-(5)):**

Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO ..... \$1,000.00 (960)

International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO ..... \$860.00 (970)

International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO ..... \$710.00 (958)

International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4) ..... \$690.00 (956)

International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4) ..... \$100.00 (962)

**ENTER APPROPRIATE BASIC FEE AMOUNT =**

\$ 1,000.00

Surcharge of \$130.00 (154) for furnishing the oath or declaration later than months from the earliest claimed priority date (37 CFR 1.492(e)).

20 ☐ 30 ☐

\$

Claims	Number Filed	Number Extra	Rate
Total Claims	7 - 20 =		X\$18.00 (966)
Independent Claims	1 - 3 =		X\$80.00 (964)
Multiple dependent claim(s) (if applicable)			+ \$270.00 (968)

\$

**TOTAL OF ABOVE CALCULATIONS =**

\$ 1,000.00

Reduction for 1/2 for filing by small entity, if applicable. Verified Small Entity statement must also be filed. (Note 37 CFR 1.9, 1.27, 1.28).

\$

**SUBTOTAL =**

\$ 1,000.00

Processing fee of \$130.00 (156) for furnishing the English translation later than months from the earliest claimed priority date (37 CFR 1.492(f)).

20 ☐ 30 ☐

\$

+

**TOTAL NATIONAL FEE =**

\$ 1,000.00

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 (581) per property +

\$

**TOTAL FEES ENCLOSED =**

\$ 1,000.00

Amount to be:  
refunded

\$

charged

\$

a. ☒ A check in the amount of \$ 1,000.00 to cover the above fees is enclosed.

b. ☐ Please charge my Deposit Account No. 02-4800 in the amount of \$ to cover the above fees. A duplicate copy of this sheet is enclosed.

c. ☐ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 02-4800. A duplicate copy of this sheet is enclosed.

**NOTE:** Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

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Date: October 30, 2000

SIGNATURE

Robert S. Swecker

NAME

19,885

REGISTRATION NUMBER

09/674262  
526 Rec'd PCT/PTO 30 OCT 2000

PATENT  
Attorney Docket 027650-907

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In Re Application Of :  
CHRISTER GORANSSON, et al. : Group Art Unit: Unassigned  
Serial No. UNASSIGNED :  
Filed: October 30, 2000 :  
For: A METHOD OF MAINTAINING THE :  
PRESSURE DIFFERENCE IN A HEAT :  
TREATMENT PLANT :

**PRELIMINARY AMENDMENT**

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

Prior to examination, please amend the above-identified application as follows:

**IN THE CLAIMS:**

Claim 6, line 1, delete "Claims 1 to 2", and insert --Claim 1--.

**REMARKS**

The above amendment has been made to remove the multiple dependency in the claim.

Early and favorable action in connection with this application is respectfully requested.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

By



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Date: October 30, 2000

3/PR<sup>th</sup>

WO 99/55175

PCT/SE99/00696

A METHOD OF MAINTAINING THE PRESSURE DIFFERENCE IN A  
HEAT TREATMENT PLANT

**TECHNICAL FIELD**

- 5       The present invention relates to a method of maintaining the pressure difference in a heat treatment plant for liquid food products, of the type in which, in a production disruption, the insufficiently treated product is caused to recycle by a return stroke.

10   **BACKGROUND ART**

- The method is intended to be used in a plant for heat treatment of the type which is described in Swedish Patent Specification SE 9203213-5. Such a heat treatment plant is intended for pasteurising liquid food products, such as milk. The plant essentially comprises a plate heat exchanger, divided into  
15   a cooler section, one or more regenerative sections and a heater section. The plant also includes a retainer cell, normally placed outside the heat exchanger, pumps, balance tank and a number of pressure and temperature meters. Further components which may also belong to the plant are a separator, standardisation equipment and a homogeniser. The various parts  
20   included in the plant are interconnected to form a unit by means of conduits. The unit is a plant for heat treatment of liquid food products, a pasteuriser.

- The heat treatment plant is intended to heat the product to a certain, preselected temperature and keep the product at this temperature for a given time. The temperature in pasteurisation is normally 72-75°C and the time  
25   interval is 15-20 seconds.

- In the heat treatment plant which is intended, use is made of regenerative sections, i.e. use is made of the heated, ready-pasteurised product which is on its way out of the plant to heat up the cold product which is entering the plant. As a result of this procedure, a high thermal  
30   degree of efficiency will be attained in the plant. At the same time, care must be taken to ensure that the pasteurised product is at a higher pressure than the unpasteurised product so that, in the event of untightness between the plates in the heat exchanger, there is no risk that unpasteurised product leaks out into the pasteurised product. The problem may be wholly obviated  
35   by simply using water as the thermal transfer medium, which, however, radically reduces the degree of efficiency of the plant. Use may also be made

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of a heat exchanger with double plates, having a space for drainage of leaking product, but this renders the plant considerably more expensive.

Thus, the striving is to maintain an excess pressure on the pasteurised product, which may constitute a problem since, in the event of production disruption, there may be a temporary pressure drop. The authorities in different countries will probably in future issue stricter regulations relating to pasteurisation safety and, as a result, the demands of being able to maintain the pressure difference so as not to run the risk that unpasteurised product infects the already pasteurised product.

In production disruptions such as varying temperature of the incoming product into the pasteuriser, brief disruptions in steam supply or variations in the fat content of the product, a product which has not reached the correct temperature may leave the heater section. Such incompletely heated product is recycled to the balance tank, or is alternatively recycled over a larger or smaller part of the plate heat exchanger. During this time, operational security must be sustained by a maintained excess pressure on the already pasteurised product. The longer the operational downtime, the more difficult it will be to maintain the excess pressure.

## OBJECT OF THE INVENTION

One object of the present invention is, in a simple and reliable manner, to ensure that the excess pressure is maintained on the pasteurised product when a temporary pressure drop occurs in connection with a production disruption.

## SOLUTION

This and other objects have been attained according to the present invention in that the method of the type described by way of introduction has been given the characterizing feature that the pressure difference after a return stroke is maintained in that the treated product is enclosed in a conduit on the downstream side of the plant, and that the space for the product there is restricted.

Preferred embodiments of the method according to the present invention have further been given the characterizing features as set forth in the appended subclaims.

### BRIEF DESCRIPTION OF THE ACCOMPANYING DRAWINGS

Preferred embodiments of the present invention will now be described in greater detail hereinbelow, with reference to the accompanying Drawings, in which:

5 Fig. 1 is a flow diagram of a heat treatment plant, according to a first embodiment;

Fig. 2 is a flow diagram of a heat treatment plant, according to a second embodiment;

10 Fig. 3 is a flow diagram of a heat treatment plant, according to a third embodiment;

Fig. 4 is a flow diagram of a heat treatment plant, according to a fourth embodiment; and

Fig. 5 shows an expansive portion of a product conduit according to the third and fourth embodiments.

15

### DESCRIPTION OF PREFERRED EMBODIMENTS

A heat treatment plant of the type in which the method according to the present invention may be employed is shown in Figs. 1-4. The product enters in a conduit 1 into the plant, passes a balance tank 2 and is fed by  
20 means of pump 3, via a pressure indicator 4, into that part of a plate heat exchanger 5 which consists of a regenerative section 6. In Figs. 1-4, one regenerative section 6 is shown, but the heat exchanger 5 may, depending upon the design of the plant, include two or more regenerative sections 6. In the regenerative section 6, the incoming product into the plant is heated by  
25 the heated product which is departing from the plant.

Between the different regenerative sections 6 in a heat exchanger 5, the plant may also include a separator, standardisation equipment and homogeniser. However, these parts are not shown on the Drawings.

After the regenerative section or sections 6, the product passes a  
30 pressure indicator 7 and a pressure booster pump 8 before passing further in to the heater section 9 of the heat exchanger 5. In the heater section 9, the product is heated with hot water or steam which is led in to the heat exchanger 5 in a conduit 10. The product in the heater section 9 is to reach a certain, preselected temperature, normally between 72 and 75°C. The  
35 pressure booster pump 8 may alternatively consist of a homogeniser.

The product heated to a preselected temperature level thereafter passes further to a retainer cell 11. The retainer cell 11 normally consists of a helical conduit where the product is kept for a given period of time. A normal time range is between 15 and 20 seconds. A temperature indicator (not shown) after the retainer cell 11 is provided for reading off that the product is kept at the desired temperature.

After the retainer cell, the product passes into a return stroke valve 12. If the correct temperature has been reached and maintained for the requisite time, the product will have achieved sufficient treatment and the thus ready-treated product is employed in the regenerative section 6 for heating the product coming into the plant. If the correct temperature has not been reached or it has not been possible to maintain it for the requisite time, a return stroke takes place in the return stroke valve 12 and the insufficiently treated product passes into a return conduit 13 back to the balance tank 2.

In normal production without disruptions, the ready-treated product thus passes once again through the regenerative section or sections 6 and the heated product on the downstream side 14 of the heat exchanger 5 preheats the cold product on the upstream side 15 of the heat exchanger 5.

From the regenerative section 6, the product thereafter passes into a cooler section 16 which also constitutes a part of the heat exchanger 5. In the cooler section 16, the product is cooled, normally by means of cold water. Cold water or other coolant passes into the heat exchanger via a conduit 17.

After the heat exchanger 5, the product passes a new pressure indicator 18 and a constant pressure valve or counter pressure valve 19. The pressure valve 19 ensures, under normal production, that the downstream side 14 of the heat exchanger 5 is at a higher pressure than the upstream side 15 of the heat exchanger 5. Via a shut-off valve 20, the now ready-treated product passes further into a conduit 21 for transport to a filling machine where the product is packed into consumer packages, or alternatively to further processing of the product, before packing.

The pressure difference in a heat treatment plant is the difference between the pressure measured by the pressure indicator 18 placed on the downstream side 14 of the pasteuriser and the pressure which is measured by the pressure indicator 4 placed on the upstream side 15 of the pasteuriser. The difference must have a certain positive value in order for it to be sure that the downstream side 14 of the regenerative section 6 is at a higher

pressure than the upstream side 15 and that no unpasteurised product can leak into the pasteurised product. The placing of the pressure indicators 4 and 18 is shown in the Drawings in that position where the pressure difference is at its lowest, but alternative placings are possible.

5       The pressure difference is maintained under normal production by the counter pressure or constant pressure valve 19. When production disruptions occur, which, for example may be because of varying temperature of the incoming product, or brief disruptions in steam supply to the heater section 9, this results in the product not being given sufficient  
10       treatment. The return stroke valve 12 is activated and the insufficiently treated product is led in return in the conduit 13 back to the balance tank 2. When this occurs, the pressure valve 19 cannot reliably cater for maintaining the pressure difference. The longer the production downtime is, the greater will be the risk that the pressure difference falls below an unacceptable level.

15       According to the present invention, the pressure difference may be maintained in that the treated product on the downstream side 14 of the pasteuriser is enclosed between the return stroke valve 12 and the shut-off valve 20, at the same time as the space for the product is restricted in this screened-off section of the plant. In that the space in the conduits is  
20       restricted, the pressure of the product increases.

      Figs. 1 and 2 show a first and second embodiment of the present invention, where a gas is led into that section of the product conduit which is closed off during a return stroke. The gas forms a "cushion" in the conduit which restricts the space for the product and the conduit increases. The gas  
25       may consist of sterile-filtered air or an inert food gas, for example nitrogen.

      In the first embodiment (Fig. 1) a gas inlet valve 22 is placed between the return stroke valve 12 and the downstream side 14 of the regenerative section 6. The gas inlet valve 22 is connected to a sterile filter 23 and gas is introduced into the filter in a conduit 24. The sterile filter 23 may be  
30       dispensed with in the employment of gas of high quality. In Fig. 2, the shut-off valve 20 also fulfils the function of gas inlet valve. The shut-off valve 20 is connected to a sterile filter 23 and a conduit 24 for gas. Moreover, an additional valve 25 has been provided in this embodiment, from which the conduit 21 departs to the filling machine or the like. A conduit 26 which  
35       constitutes a return conduit departs from the shut-off valve 20.



At the same time as the return stroke valve 12 is activated and the shut-off valve 20 closes (or alternatively with a slight time-lag), the gas inlet valve 22 opens and remains open throughout the time when the return stroke valve 12 is activated. In the second embodiment, the inlet of gas is opened when the shut-off valve 20 shuts against the conduit 26, since the inlet of gas takes place through the shut-off valve 20. In this second embodiment, the valve 25 also shuts against the conduit 21 on return stroke.

When the return stroke valve 12 is once again deactivated, the gas inlet valve 22 closes or alternatively the shut-off valve 20 stops the inlet of gas. The product will once again flow in the conduit which had been closed and the "gas cushion", as good as intact, will accompany the product. In a sterile tank (not shown) which normally precedes a filling machine, the gas will bubble up and leave the product.

In that case when the product consists of a juice and use is made of sterile air as the space restricting gas, the second embodiment may be preferable, since the air has an oxidising effect on the juice, which gives a deterioration in flavour. As a result of the placing of the gas inlet after the conduit 21 to the filling machine, a very slight quantity of the product is affected by the air, and the product which is subjected to such action may be removed from production through the conduit 26. Alternatively, this embodiment may be employed for products which are not sensitive to air. The valve 25 serves no function in such a design and can, as a result, be dispensed with.

A third and fourth embodiment of the present invention are shown in Figs. 3 and 4. The space for the product is restricted in these embodiments in that an expansive portion 27 is placed in the shut-off section of the conduit. A detailed version of an expansive portion is shown in Fig. 5. In the third embodiment, the expansive portion 27 is placed between the return stroke valve 12 and the downstream side 14 of the regenerative section 6. In the fourth embodiment, the expansive portion 27 is to be found between the cooler section 16 and the counter pressure valve 19.

In principle, the expansive portion consists of a pipe length 28 coupled in on the regular product conduit 29. In the pipe length 28, there is an inner wall 30 of an elastic material such as silicon rubber. The pipe length 28 displays, on its circumferential surface, a connection 31 for liquid or gas.

The connection 31 for liquid or gas is in direction communication with an interspace 32 between the pipe length 28 and the elastic wall 30.

By supplying gas or liquid under pressure to the interspace 32, the wall 30 expands and thereby restricts the space for the product which is located in the conduit 29. Fig. 5 shows the wall 30 in both the expanded (30') and unexpanded (30) states.

Simultaneously with the activation of the return stroke valve 12 and the shut-off valve closing against the conduit 20 (alternatively with some time-lag), a gas or liquid is passed through the connection 31 in the interspace 32, and the wall expands. The expanded wall 30' reduces the space for the product in the conduit 29 and the pressure in the conduit 29 increases. When the return stroke valve 12 returns to start and normal production takes over, the liquid or gas is sucked out of the interspace 32 and the wall 30 returns to normal state.

As will have been apparent from the foregoing description, the present invention realises a method of maintaining, in a simple and reliable manner, the pressure difference in a heat treatment plant for liquid foods in connection with brief production disruptions, in that treated product is enclosed on the downstream side of the plant, and in that the space for the product there is restricted, which gives rise to an increase in the pressure.

The present invention should not be considered as restricted to that described above and shown on the Drawings, many modifications being conceivable without departing from the scope of the appended Claims.

## WHAT IS CLAIMED IS:

1. A method of maintaining the pressure difference in a heat treatment plant for liquid food products, of the type in which, in a production disruption, the insufficiently treated product is caused to recycle by a return stroke, characterized in that the pressure difference after a return stroke is maintained in that the treated product is enclosed in a conduit on the downstream side (14) of the plant; and that the space for the product there is restricted.
2. The method as claimed in Claim 1, characterized in that the product is enclosed between a return stroke valve (12) and a shut-off valve (20).
3. The method as claimed in Claim 2, characterized in that the space for the product is restricted in that a gas is introduced into the product conduit.
4. The method as claimed in Claim 3, characterized in that gas is led into the product conduit between the return stroke valve (12) and the regenerative section (6) of the downstream side (14).
5. The method as claimed in Claim 3, characterized in that gas is led into the product conduit in the shut-off valve (20).
6. The method as claimed in Claims 1 to 2, characterized in that the space for the product is restricted in that a part of the product conduit (29) consists of an expansive portion (27) which forms a throttle in the product conduit (29).
7. The method as claimed in Claim 6, characterized in that the expansive portion (27) consists of a pipe length (28) with an inner elastic wall (30) which expands in that gas or liquid is introduced into an interspace (32) between the pipe length (28) and the wall (30).

1/3

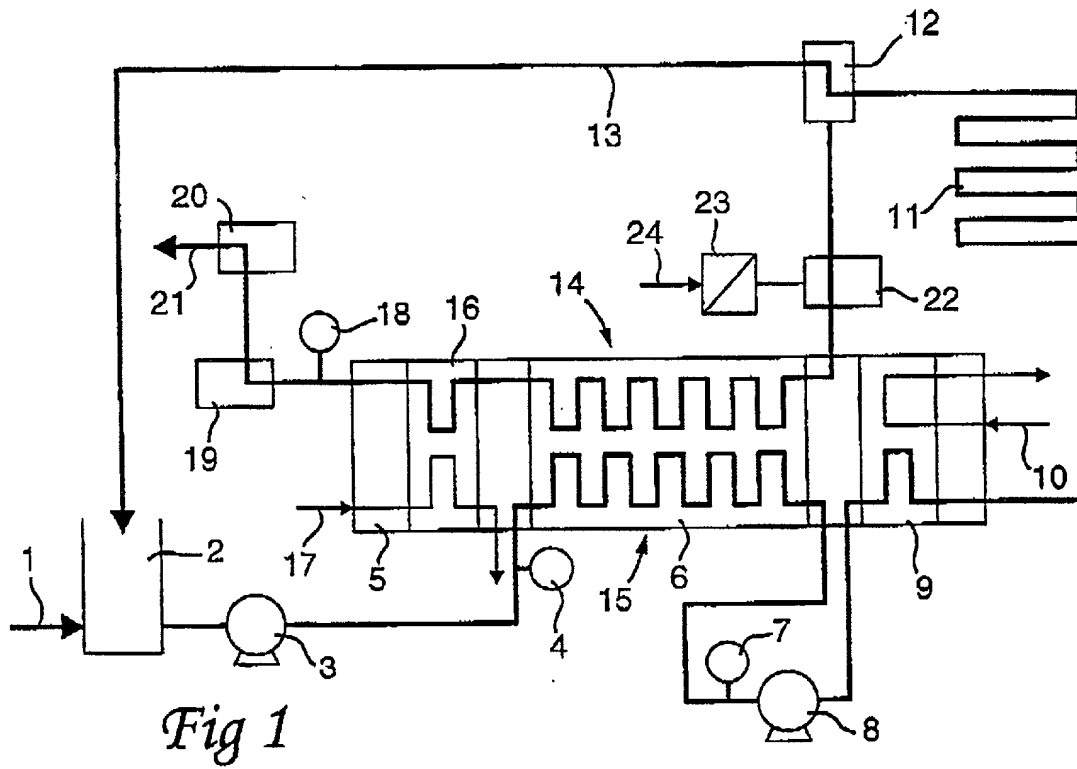


Fig 1

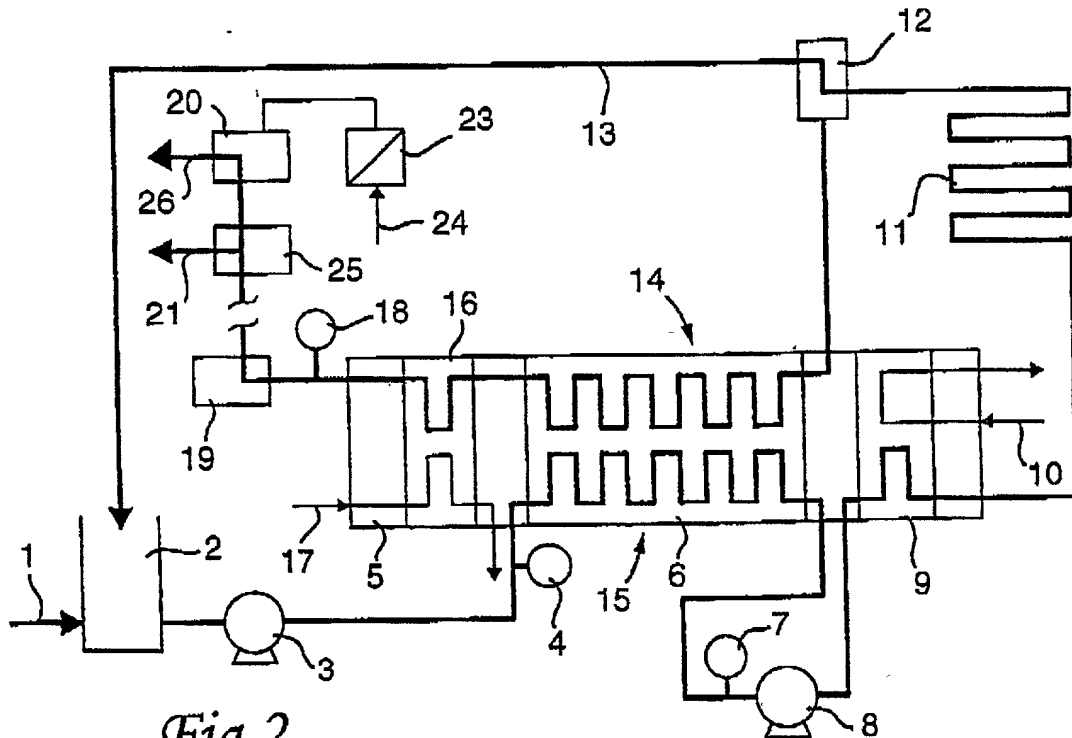
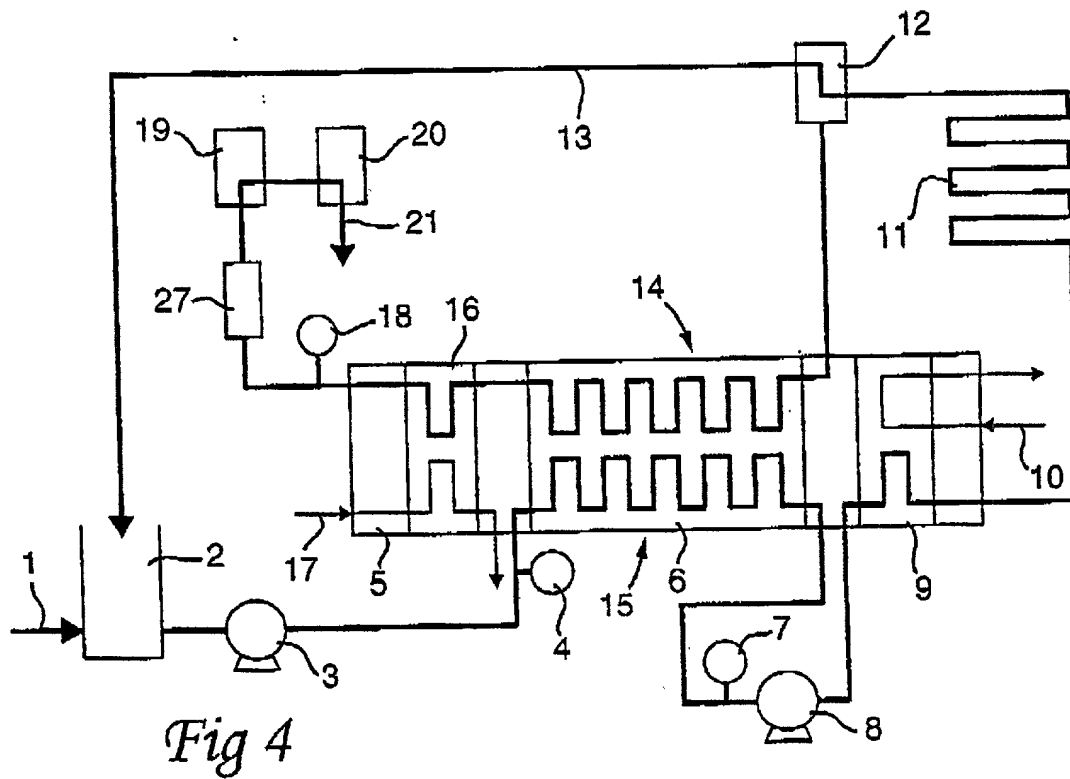


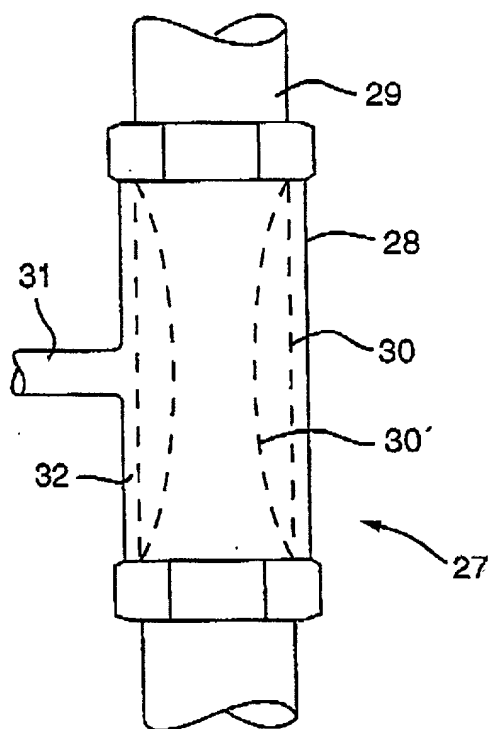
Fig 2

*Fig 3*



*Fig 4*

[illegible]

*Fig 5*

TP 1276 US

**COMBINED DECLARATION FOR PATENT APPLICATION AND POWER OF ATTORNEY**  
(Includes Reference to Provisional and International (PCT) Applications)

Attorney's Docket No.  
027650-907

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name;

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

A METHOD OF MAINTAINING THE PRESSURE DIFFERENCE IN A HEAT TREATMENT PLANT

The specification of which (check only one item below):

☐ is attached hereto.

☐ was filed as United States Patent Application  
Number \_\_\_\_\_  
on \_\_\_\_\_  
and was amended on \_\_\_\_\_

(if applicable).

☒ was filed as International (PCT) Application  
Number PCT/SE99/00696  
on 28 April 1999  
and was amended on \_\_\_\_\_

(if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the U.S. Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §§ 119 (a)-(e) of any foreign application(s) for patent or inventor's certificate or of any International (PCT) Application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT International (PCT) Application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

**PRIOR FOREIGN/PCT APPLICATION(S) AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. § 119:**

COUNTRY (if PCT, indicate "PCT")	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED UNDER 35 U.S.C. § 119
Sweden	9801507-6	29 April 1998	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No

I hereby claim the benefit under Title 35, United States Code § 119(e) of any United States provisional application(s) listed below.

\_\_\_\_\_  
(APPLICATION NUMBER)

\_\_\_\_\_  
(FILING DATE)

\_\_\_\_\_  
(APPLICATION NUMBER)

\_\_\_\_\_  
(FILING DATE)

**COMBINED DECLARATION FOR PATENT APPLICATION AND POWER OF ATTORNEY (CONT'D)**  
(Includes Reference to Provisional and International (PCT) Applications)

Attorney's Docket  
No. 027650-907

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) or International (PCT) Application(s) designating the United States of America that is/are listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose to the U.S. Patent and Trademark Office all information known to me to be material to the patentability as defined in Title 37, Code of Federal Regulations § 1.56, which became available between the filing date of the prior application(s) and the national or international filing date of this application:

PRIOR U.S. APPLICATIONS OR INTERNATIONAL (PCT) APPLICATIONS DESIGNATING THE U.S. FOR BENEFIT UNDER 35 U.S.C. § 120:

U.S. APPLICATIONS		STATUS (check one)		
U.S. APPLICATION NUMBER	U.S. FILING DATE	PATENTED	PENDING	ABANDONED
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PCT APPLICATIONS DESIGNATING THE U.S.				
PCT APPLICATION NO.	PCT FILING DATE	U.S. APPLICATION NUMBERS ASSIGNED (if any)		
PCT/SE99/00696	28 April 1999			

I hereby appoint the following attorneys and agent(s) to prosecute said application and to transact all business in the U.S. Patent and Trademark Office connected therewith and to file, prosecute and to transact all business in connection with international applications directed to said invention:

William L. Mathis	17,337	E. Joseph Gess	28,510	Gerald F. Swiss	30,113
Robert S. Swecker	19,885	R. Danny Huntington	27,903	Michael J. Ure	33,089
Platon N. Mandros	22,124	Eric H. Weisblatt	30,505	Charles F. Wieland III	33,096
Benton S. Duffett, Jr.	22,030	James W. Peterson	26,057	Bruce T. Wieder	33,815
Norman H. Stepno	22,716	Teresa Stanek Rea	30,427	Todd R. Walters	34,040
Ronald L. Grudziecki	24,970	Robert E. Krebs	25,885	Ronni S. Jillions	31,979
Frederick G. Michaud, Jr.	26,003	William C. Rowland	30,888	Harold R. Brown III	36,341
Alan E. Kopecki	25,813	T. Gene Dillahunt	25,423	Allen R. Baum	36,086
Regis E. Slutter	26,999	Patrick C. Keane	32,858	Steven M. du Bois	35,023
Samuel C. Miller, III	27,360	Bruce J. Boggs, Jr.	32,344	Brian P. O'Shaughnessy	32,747
Robert G. Mukai	28,531	William H. Benz	25,952	Kenneth B. Leffler	36,075
George A. Hovanec, Jr.	28,223	Peter K. Skiff	31,917	Fred W. Hathaway	32,236
James A. LaBarre	28,632	Richard J. McGrath	29,195		
		Matthew L. Schneider	32,814		
		Michael G. Savage	32,596		



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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.



**COMBINED DECLARATION FOR PATENT APPLICATION AND POWER OF ATTORNEY (CONT'D)**  
(Includes Reference to Provisional and International (PCT) Applications)

Attorney's Docket No.  
027650-907

FULL NAME OF SOLE OR FIRST INVENTOR Christer GÖRANSSON		SIGNATURE <i>Christer Göransson</i>	DATE 24 nov. 2000
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FULL NAME OF SECOND JOINT INVENTOR, IF ANY Magnus JANSSON		SIGNATURE <i>Magnus Jansson</i>	DATE 14 dec 2000
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FULL NAME OF FOURTH JOINT INVENTOR, IF ANY		SIGNATURE	DATE
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FULL NAME OF FIFTH JOINT INVENTOR, IF ANY		SIGNATURE	DATE
RESIDENCE (CITY & STATE/COUNTRY)		CITIZENSHIP	
POST OFFICE ADDRESS (HOME ADDRESS)			
FULL NAME OF SIXTH JOINT INVENTOR, IF ANY		SIGNATURE	DATE
RESIDENCE (CITY & STATE/COUNTRY)		CITIZENSHIP	
POST OFFICE ADDRESS (HOME ADDRESS)			
FULL NAME OF SEVENTH JOINT INVENTOR, IF ANY		SIGNATURE	DATE
RESIDENCE (CITY & STATE/COUNTRY)		CITIZENSHIP	
POST OFFICE ADDRESS (HOME ADDRESS)			
FULL NAME OF EIGHTH JOINT INVENTOR, IF ANY		SIGNATURE	DATE
RESIDENCE (CITY & STATE/COUNTRY)		CITIZENSHIP	
POST OFFICE ADDRESS (HOME ADDRESS)			
FULL NAME OF NINTH JOINT INVENTOR, IF ANY		SIGNATURE	DATE
RESIDENCE (CITY & STATE/COUNTRY)		CITIZENSHIP	
POST OFFICE ADDRESS (HOME ADDRESS)			
FULL NAME OF TENTH JOINT INVENTOR, IF ANY		SIGNATURE	DATE
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